ACC.15
TCT@ACC-i2 | innovation in intervention

A1159
JACC March 17, 2015
Volume 65, Issue 10S

Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

A SIMPLE-TO-USE NOMOGRAM FOR PREDICTING 5-, 10- AND 15-YEAR SURVIVAL FOR ASYMPTOMATIC INDIVIDUALS UNDERGOING CORONARY ARTERY CALCIUM SCORING

Poster Contributions
Poster Hall B1
Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
Abstract Category: 16. Non Invasive Imaging: CT/Multimodality, Angiography, and Non-CT Angiography
Presentation Number: 1136-024

Authors: *Briain O Hartaigh, Heidi Gransar, Tracy Callister, Leslee Shaw, Joshua Schulman-Marcus, Valentina Valenti, Iksung Cho, Quynh Truong, Jackie Szymonifka, James Min, Weill Cornell Medical College, New York, NY, USA*

Background: Coronary artery calcium score (CACS) is a robust predictor of future cardiovascular events. To date, incorporation of the prognostic information from CACS in the clinical setting when considering other coronary artery disease (CAD) risk factors is a challenge. We thus developed a simple-to-use nomogram to predict 15-year survival for asymptomatic individuals undergoing CACS.

Methods: A total of 9,715 asymptomatic persons referred for cardiovascular screening were followed prospectively for an endpoint of all-cause death. We fashioned a nomogram based on a bootstrapped-corrected Cox proportional hazards regression model that included: age, sex, smoking, hypertension, dyslipidemia, type 2 diabetes, family history of premature CAD, and CACS. Model validation was evaluated using discrimination and calibration procedures.

Results: During a median 14.4 years, 936 (9.6%) deaths occurred. Most conventional risk factors reported a strong independent relationship with all-cause death (all, P<0.001), with the exception of sex (P=0.72). The developed nomogram effectively predicted 5-, 10-, and 15-year probability of survival. Discrimination of the nomogram was high (C index 0.74), and model calibration by use of a goodness of fit test displayed good fit ($\chi 2 = 4.78$, P<0.94).

Conclusion: A simple-to-use nomogram effectively predicts 5-, 10- and 15-year survival for asymptomatic individuals undergoing CACS. This nomogram may be considered for use in clinical care.

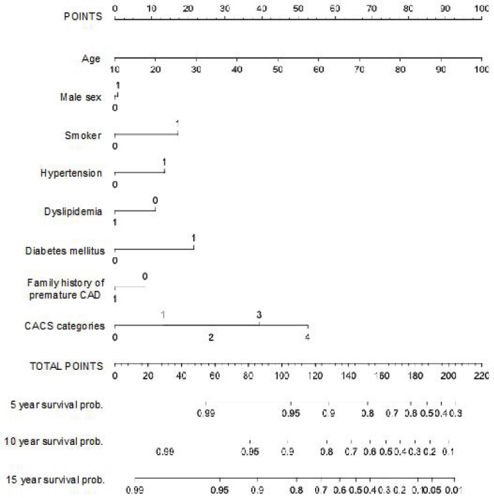

Figure 1. Instructions for use of the nomogram. Draw a vertical line on the corresponding axis of each variable to the top line labeled "POINTS" to calculate the score for each variable. Add the number of points for all variables then draw a vertical line from the axis labeled "TOTAL POINTS" until it intercepts each of the survival axes to determine the 5-, 10-, and 15-year survival probability. For binary variables, 0 = no and 1 = yes. For CACS categories, 0 = none, 1 = 1-100, 2 = 101-400, 3 = 401-1,000, and 4 = >1,000. Abbreviations: CAD = coronary artery disease; CACS = coronary artery calcium score.